A. J. MORRISON.

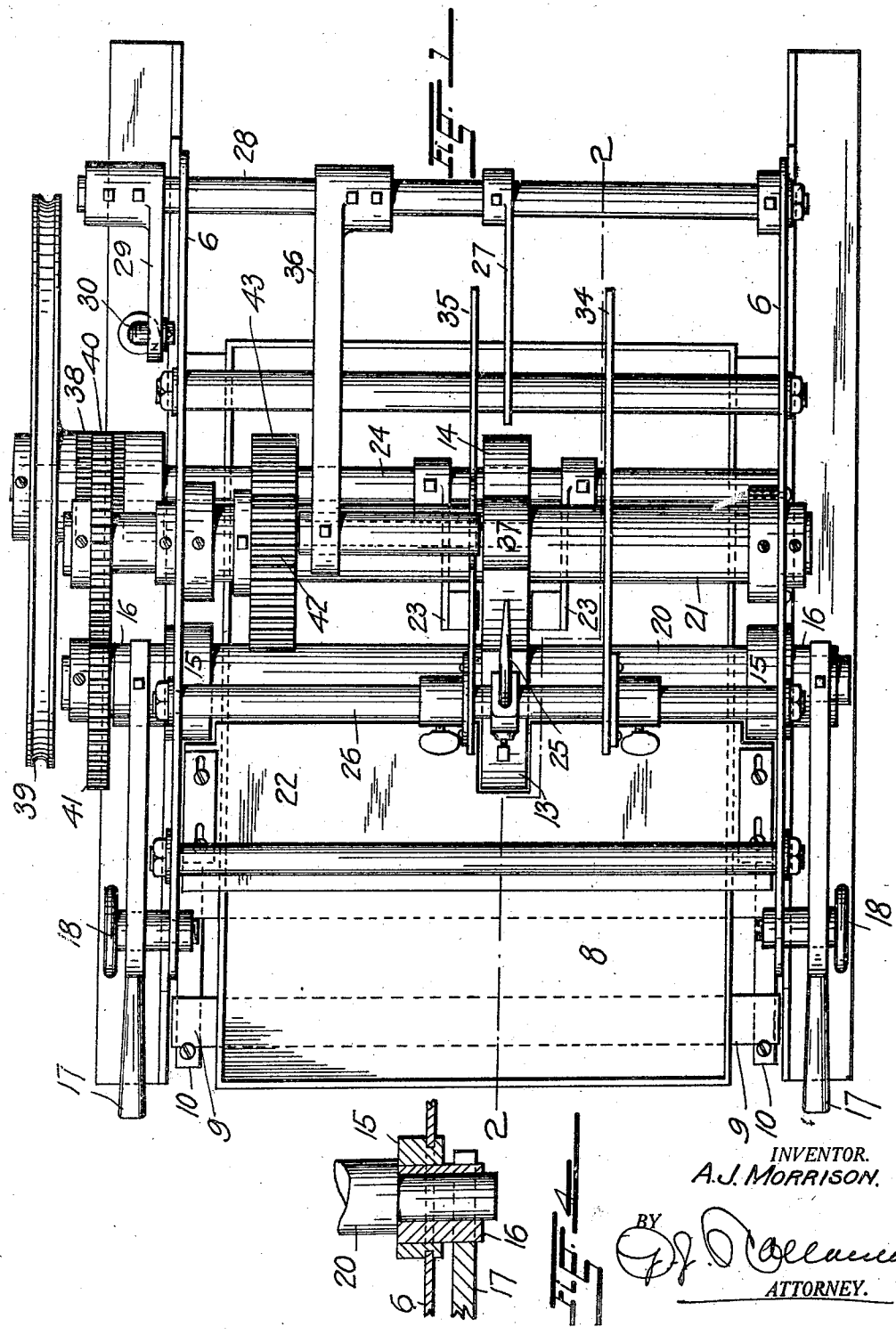
MACHINE FOR GLUING BOX SHOULDERS.

APPLICATION FILED NOV. 14, 1919.

1,417,195.

Patented May 23, 1922.

3 SHEETS—SHEET 1.



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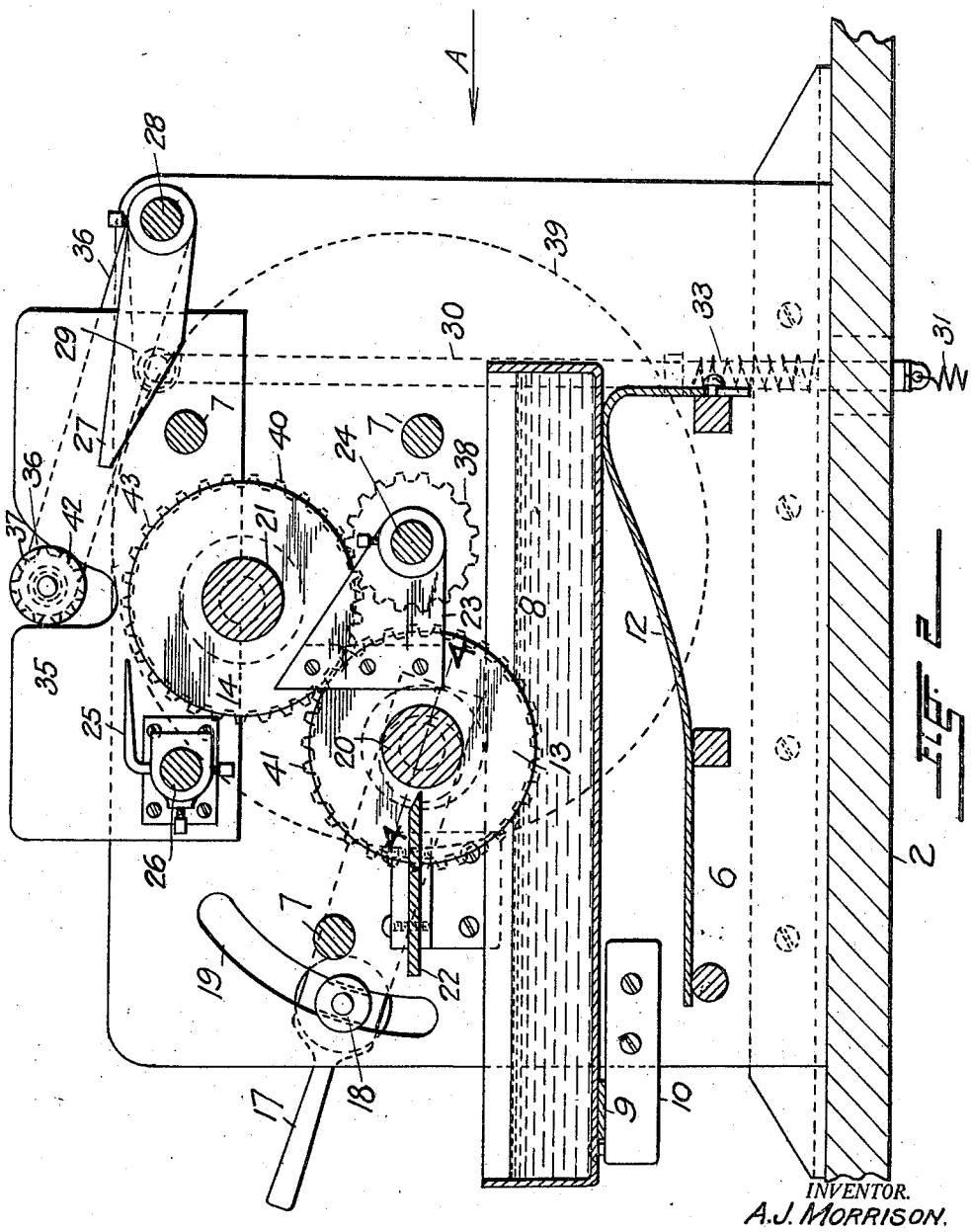



FIG. 2

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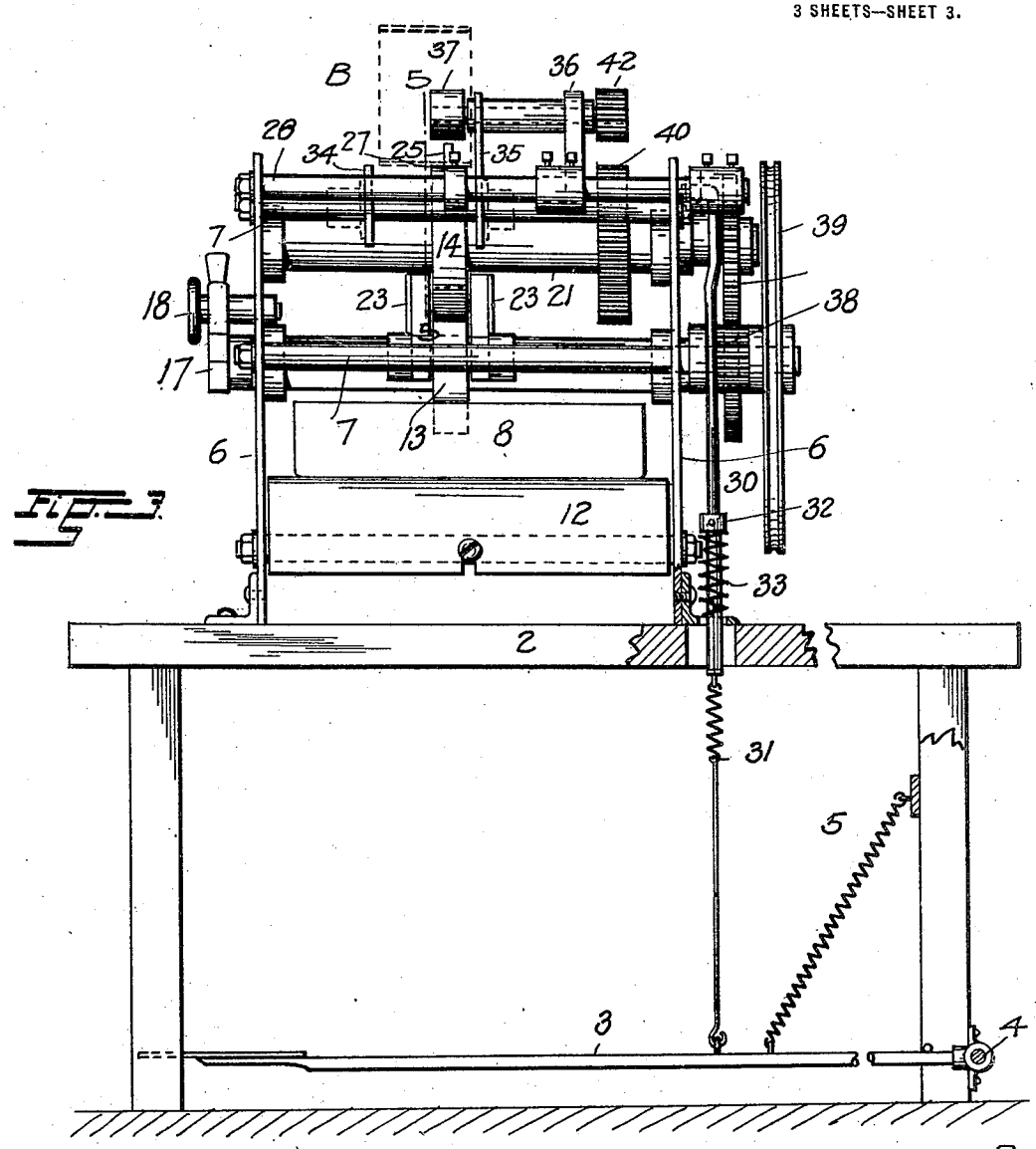



FIG. 3.

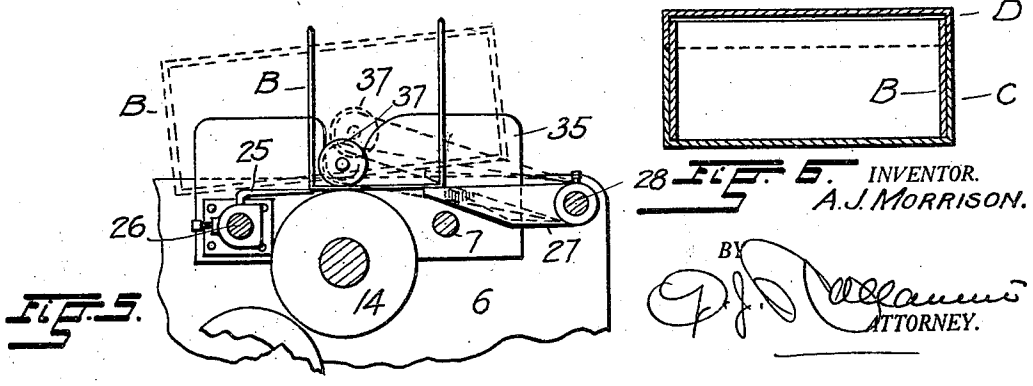



FIG. 5.




FIG. 4.

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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR GLUING BOX SHOULDERS.

1,417,195. Specification of Letters Patent. Patented May 23, 1922.

Application filed November 14, 1919. Serial No. 338,050.

*To all whom it may concern:*

Be it known that I, ALFRED J. MORRISON, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Machines for Gluing Box Shoulders, of which the following is a specification.

This invention relates to a machine for coating box-shoulders with an adhesive substance preparatory to gluing them inside the paper boxes of which they are a part, and its primary object is to reduce manual labor in the manufacture of paper boxes by the provision of a mechanism which automatically applies glue along the four sides of a box shoulder in an even strip of predetermined width.

An embodiment of my invention has been illustrated in the accompanying three sheets of drawings in the various views of which like parts are similarly designated, and in which—

Figure 1 represents a plan view of my improved coating machine,

Figure 2, a vertical section on the line 2—2, Figure 1,

Figure 3, a partially sectional end elevation of the machine looking in the direction of the arrow A, Figure 1, drawn to a reduced scale;

Figure 4, a section through one of the eccentric bushings which support the ends of the shaft of the dipping roller of the machine;

Figure 5, a section taken on the line 5—5, Figure 3 showing different positions of a box-shoulder in the operation of a machine, and

Figure 6, a section through a completed box of which the shoulder is a part.

Referring to the drawings by numerical reference characters, 2 designates a table upon which the machine is supported in connection with a foot-lever 3 which is mounted on a rotary shaft 4 beneath the same.

A spring 5 stretched between the foot lever and a cross-bar on the table serves to yieldingly hold the lever in its normal position.

The cooperating elements of the machine are assembled in a frame preferably composed of parallel side plates 6 connected by tie rods 7 and secured to the table by bolts passing through flanges at their lower ends.

A glue pan 8 is supported in a horizontal position upon a cross-bar 9 removably mounted on two brackets 10 at the front of the frame, and upon an elevated ridge of a partially inclined plate 12 which provides a sliding support for the pan in a continuously horizontal position while it is being put in place or removed.

The reference character 13 designates the dipping roller which rotates through the liquid contents of the pan and transfers a part thereof to the surface of a coating roller 14. The two rollers are mounted upon parallel shafts 20 and 21 which are supported in boxes on the side plates of the frame.

The boxes 15 in which the shaft of the dipping roller is supported are lined with eccentric bushings 16 at the ends of handles 17 which extend along and beyond the side plates of the frame.

Screw clamps 18 attached to the handles extend through arcuate slots 19 in the side plates and are adapted to secure the bushings in their adjusted positions in the respective bearings.

It will be seen that by rotation of the bushings the position of the shaft supported therein may be varied to any distance within the limits of their eccentricity, and that thereby the space between the dipping roller and the coating roller may be changed to regulate the thickness of the coating of glue to be applied to the box shoulders in the operation of the machine.

An adjustable plate 22 has an edge which conforms with the outline of the dipping roller, the shaft on which it is mounted and the portion of the bearings for the shaft within the frame, and which extends in close proximity to said parts for the removal of excess glue and foreign matter from the face and the sides of the roller, and for the removal of any glue spilled upon the shaft or its bearings.

Glue extending beyond the circumferential faces of both the dipping roller and the coating roller is removed by a pair of scrapers 23 adjustably mounted at opposite sides

of the rollers upon a nonrotary shaft 24 on the frame of the machine.

The box shoulders which are coated in the operation of the machine consists, as usual, of strips B of card—or paste board bent in the form of a square, which fit snugly within the body portions C of the boxes and extend partially above the same to enter correspondingly formed box lids D.

At the initial point of the operation, the shoulder B is placed above the coating roller upon two cooperating members of a support one of which consists of a horizontally projecting finger 25 adjustably mounted on a rod 26 of the frame, and the other of which comprises an arm 27 which projects from a rocker shaft 28.

A crank 29 on the shaft connects with a rod 30 which extends loosely through an opening in the table and which is attached to the foot lever through the medium of a flexible connection 31.

A collar 32 on the rod rests upon a coiled spring 33 which is supported on the flange of the adjacent side plate of the frame, to yieldingly hold the rocker shaft in a position in which its arm slants upwardly to a plane above the coating roller as shown in full lines in Figure 2, and in broken lines in Figure 5.

When the box shoulder is placed upon the two members of the support in the above described position, it is held free from contact with the coating roller to permit of its adjustment before the coating of glue is applied.

The shoulder placed on the support is held against lateral displacement between a pair of plates 34 and 35 which are adjustably mounted upon the before-mentioned rod 26 of the shoulder supporting finger 25 and upon one of the tie-rods 7 placed parallel therewith between the side plates of the frame.

The position of the shoulder between these plates has been indicated in broken lines in Figure 3.

A second arm 36 extending from the rocker shaft carries at its outer end a pressure roller 37 which projects above the coating roller to force the lower portion of the box shoulder into contact with its glue-coated face.

When the parts are in the idle position shown in Figure 2, the roller 37 extends at a distance above the lower part of the box shoulder and it is brought into contact therewith by rotation of the rocker shaft through the medium of the foot lever after the shoulder has been lowered onto the coating roller by the simultaneous downward movement of the supporting arm 27.

The resilient connection between the rod on the crank of the rocker shaft and the foot lever, permits of the pressure roller yielding in an upward direction when irregularities in the paper of the shoulder or solid particles in the glue pass between the rollers.

In the operation of the machine the pressure roller is rotated in a direction opposite to that of the coating roller by a gearing hereinafter to be described, and a lengthwise movement is in consequence imparted to the part of the box shoulder between these rollers until by contact of the pressure roller with the adjoining upwardly extending part of the shoulder the latter is turned about its corner.

The next adjoining part of the shoulder is now fed along the surface of the coating roller and the operation is continued until all four sides of the box shoulder have been coated.

The shoulder is subsequently lifted from the coating roller by pressure upon the foot lever and placed inside the body portion of the box, as shown in Figure 6, to which it is attached by the strip of glue applied to its outer surface by the operation of the machine as hereinbefore described.

It will be understood that the box shoulders may likewise be fed between the rollers in a flat condition and bent into the required form after the glue has been applied.

The gearing for the rotation of the three rollers comprises a driving pinion 38 in rigid connection with a sheave 39 which is rotatably mounted upon an end of the before-mentioned shaft 24.

The pinion meshes with a gear wheel 40 on the shaft of the coating roller and this gear wheel engages a similar wheel 41 on the shaft of the dipping roller.

A pinion 42 on the pressure roller is normally separated from a corresponding gear wheel 43 on the shaft of the coating roller, and is brought in mesh therewith at the same time that the roller presses the box shoulder against the surface of the coating roller.

A rope or belt is employed to connect the sheave with a correspondingly formed driving member on a conveniently disposed line shaft or motor.

Having thus described my improved coating machine in the best form at present known to me, I desire it understood that variations in the arrangement and construction of its cooperating parts may be resorted to within the spirit of my invention as set forth in the following claims:

What I claim is:

1. In a machine of the character described, the combination of a coating-roller, a support for an object engaging the peripheral face thereof, a pressure roller adapted to contact with the object on the support, and adjustable cheek plates at opposite sides of the support, to regulate the position of the object thereon, with relation to the face of the coating-roller.

2. In a machine of the character described, the combination of a coating-roller, a pressure-roller mounted to be moved into contact with an object placed against the peripheral face thereof, and a support for the object mounted to move in conjunction with the pressure roller.

3. In a machine of the character described, the combination of a coating-roller, a rocker arm for the support of an object above the peripheral face thereof, a second rocker-arm mounted to move in conjunction with the other, a pressure roller on the second arm, adapted to engage the object on the support, and operating mechanism for the conjunctive movement of said arms, toward the coating-roller.

4. In a machine of the character described, the combination of a coating-roller, means for the support of an object above the peripheral face thereof, which is movable to bring the object in contact therewith, a pressure-roller adapted to engage the object on the supporting means, and mounted to move in conjunction with said means, and operating mechanism to effect said movements.

5. In a machine of the character described, the combination of a coating-roller, a rocker arm, a relatively stationary supporting member cooperating therewith for the support of an object above the peripheral face of the roller, a second rocker-arm mounted to move in conjunction with the other, a pressure roller on the second arm, adapted to engage the object on the support, and operating mechanism for the conjunctive movement of said arms toward the coating-roller.

6. In a machine of the character described, the combination of a coating roller, a pressure roller normally separated from the coating roller and movable to engage an object engaging with the peripheral surface of the same, a gear wheel connected to the coating roller, driving mechanism in operative connection with said wheel, and a gearwheel on the pressure roller normally separated from the first-mentioned gearwheel and adapted to move with the pressure roller in engagement with the same.

7. In a machine of the character described, the combination of a coating roller, a pressure roller normally separated from the coating roller and movable to engage an object engaging with the peripheral surface of the same, and normally inactive gearing adapted for operation by movement of the pressure roller, to rotate the rollers in opposite directions.

8. In a machine of the character described, a coating roller, a pressure roller movable to engage an object engaging with the peripheral surface thereof, and two supports for the object, one of which is movable with the pressure roller.

9. In a machine of the character described, the combination of a coating roller, means cooperating with said roller for the support of a box shoulder in contact with the peripheral face thereof, and an element adapted to engage with an upstanding member of the box shoulder adjacent the point of contact of an adjoining member of the same with the roller.

10. In a machine of the character described, the combination of a coating roller, means cooperating with said roller for the support of a box shoulder in contact with the peripheral face thereof, and a pressure roller of comparatively small diameter adapted to contact with angularly adjoining members of the box shoulder adjacent its point of contact with the other roller.

11. In a machine of the character described, the combination of a coating roller, means cooperating with said roller for the support of a box shoulder in contact with the peripheral face thereof, a pressure roller of comparatively small diameter adapted to contact with angularly adjoining members of the box shoulder adjacent its point of contact with the other roller, and gearing for rotating the rollers in opposite directions.

12. In a machine of the character described, the combination of a coating roller, means cooperating with said roller for the support of a box shoulder in contact with the peripheral face thereof, and an element cooperating with the coating roller to automatically turn the box shoulder about its corners by engagement with an upstanding side of the same as it nears the point of contact of the adjoining side with the roller.

In testimony whereof I have affixed my signature.

ALFRED J. MORRISON.